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PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	**§ §**	**PUBLIC UTILITY COMMISSION OF TEXAS**

COMMENTS OF ENVIRONMENTAL DEFENSE FUND & ALISON SILVERSTEIN CONSULTING

COMES NOW Environmental Defense Fund, a non-profit, non-partisan, non-governmental environmental organization and Alison Silverstein, an independent energy consultant, to offer these joint-filed Comments responding to the Commission's September 2, 2021 questions about demand response in Project No. 52373, the Review of Wholesale Electric Market Design.

The Commission has asked for responses to detailed questions about how to provide residential demand response (DR). While we concur as to the value of that information, these comments offer some policy context for the reliability benefits of demand response, suggest ways to increase and maximize those benefits, and address how to assure that demand response providers and offerings are accountable and respectful of customers' needs and rights.

As the Commissioners discussed in Open Meeting on September 2, 2021, customer demand response and demand flexibility can discipline real-time market prices through price-responsive or time-based rates and grid condition-triggered demand reductions. These customer actions can enhance reliability through price-responsive, dispatchable and voluntary customer measures for reducing or shifting their electricity use, whether to cut peak demand, fill demand valleys, and provide ancillary services. Since the majority of ERCOT residential customers contract for electricity under flat rates, we should expect most residential DR to arise from end use-specific curtailment or load shift arrangements rather than time-of-use rates.

Many commercial and industrial customers already respond to time-varying rates and Retail Electric Provider (REP), curtailment aggregator or ERCOT signals to reduce load for Emergency Response Service (ERS) or other DR products. It has been proven that demand response can provide many ancillary services faster and more precisely than fossil generators.

Texas DR efforts should leverage the combined capabilities of direct load control (DLC) programs, customers' distributed energy resources (behind-the-meter electric vehicles, photovoltaics and batteries), smart homes and home automation, and behavioral load shifts motivated by savings opportunities. There are over 700 MW of rooftop photovoltaics in ERCOT today,[1] over 52,000 electric vehicles in Texas,[2] and batteries are installed in 50,000 Texas homes.[3] Solar, battery, microgrid and back-up energy system vendors report massive sales increases since Winter Storm Uri.[4] Within ERCOT, at least half of both summer and winter peak demands come from residential and commercial loads, so it follows that managing those customers' air conditioning and other peak-contributing loads and engaging their distributed storage assets to support the grid will reduce the demand-to-supply balancing challenge and improve reliability.

Well-designed demand response (DR) measures can improve reliability. We encourage the Commission to consider the following policy changes to expand the amount of controllable residential and small customer demand response available to support grid reliability:

1. Change the regulatory definition of demand response (DR) – Much of the language in Texas Administrative Code 25.181 frames demand response as customer load reductions during peak use periods. But to remove obstacles to DR provision, broaden DR options and maximize

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[1] ERCOT, "2021 ERCOT System Planning, Long-Term Hourly Peak Demand and Energy Forecast," January 8, 2021.
[2] Alternate Fuels Data Center, https://afdc.energy.gov/data/10962 .
[3] Alejandra Borunda, "Solar panels and batteries on your home could help prevent the next grid disaster," National Geographic, February 25, 2021.
[4] Sergio Chapa, "Gas-Loving Texans Pile Into Solar, Batteries after Freeze," Bloomberg Green, April 28, 2021.

its value, the Commission should revise all regulations to remove the peak reduction focus for broad DR usability. In particular, current "peak" reduction efforts within ERCOT are targeted to reduce summer electric usage (as by moving thermostats higher), but Winter Storm Uri painfully demonstrated the need for a diversity of load management targets and capabilities beyond summer peak load reduction. And as more utility-scale and rooftop photovoltaics interconnect to the ERCOT grid, we could use managed electric vehicle charging and water heating loads in times of robust generation to soak up excess generation and stabilize real-time electric prices, and back off those loads and air conditioning to ease supply and demand balance during the evening PV ramp-down.[5]

2. Increase the goals and funding for Texas transmission and distribution utilities' energy efficiency program efforts directed toward demand response provision.[6] In particular, require each TDU to have at least 5% of residential winter and summer peak load demand reduction capability by December 2025 (as proposed in the original filed version of S.B. No. 2019, by Senator Schwertner) and 10% by December 2030. Aggressive energy efficiency measures targeted at heating, air conditioning with home weatherization can provide always-on, "baseload" demand reduction while demand response provides predictable, often dispatchable reliability services. Texas has a vast resource of inefficient energy devices and buildings to provide a pool of cost-effective energy efficiency and demand response services.

3. Automation greatly improves customers' ability and willingness to participate in DR programs by reducing participation effort and the noticeable impact of energy use shifts. Automated methods include direct load curtailment and cycling of thermostats, pool pumps and water heaters, smart thermostats, managed electric vehicle charging, and more. At present many of these tools are being used at the direction of load-serving entities for four coincident peak hours avoidance – which itself delivers meaningful load reductions and reliability benefits -- but as residential DR grows, more residential DR dispatchable or manageable load will be available for use to support reliability and ancillary services during winter and shoulder periods.

4. Change interconnection requirements and permissions to enable distributed storage to be used for ancillary service provision, and allow cost recovery for TDUs to install standardized customer equipment interface upgrades and feeder protections as necessary to facilitate such use. Allow aggregators to use distributed batteries, electric vehicles and rooftop PV as dispatchable virtual power plants to provide ancillary services and capacity.

5. Explore the use of better baseline identification methods (rather than simple comparison against a customers' immediate past usage) to estimate DR delivery, particularly since an increasing number of current events have no past weather parallels (as with Winter Storm Uri

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[5] Since Hawaii also has high intermittent generation and growing behind-the-meter resources, Hawaii's PUC-approved Rule No. 30 Microgrid Services Tariff addresses interconnection, safe operation and compensation and may be of interest to the Texas Commission.

[6] Some commenters in PUCT Project 52373 have recommended reallocating current energy efficiency program funds to spend on demand response. This would be a grave mistake, since both energy efficiency and DR are highly cost-effective and will improve grid reliability while lowering costs. Instead, the PUCT should increase TDU funding dramatically for both energy efficiency and demand response measures.

cold temperatures or rising summer temperatures). Instead, consider using usage by statistically comparable customers as the baseline for DR participants.[7]

6. Improve customer access to real-time data and the flow of customer energy use data and real-time usage (on-demand meter reading and usage alerts) to third-party energy service providers and aggregators. PUCT Project 48525 laid the groundwork for this but customer data access does not appear to have materially improved yet.

7. Since most residential electricity uses are similar state-wide, as are grid reliability needs, the Commission should consider directing the TDUs and REPs to offer residential demand response programs that use common underlying standards for automation technologies, communication and dispatch protocols (see those identified by the Smart Energy Consumer Collaborative and NAESB Req 22 on consumer data privacy) to ease adoption with minimal customer confusion and cost.

DR Provider Accountability and Customer Rights

Demand response programs and providers should deliver value and protection to the customers who provide demand shifts as well as to the grid and the market. To that end, we recommend that the Commission impose a set of minimum provisions on the TDUs, REPs and aggregators such as curtailment service providers that serve residential and small commercial customers. Those provider accountability and customer protection requirements should include the following provisions, applicable to all DR and demand flexibility providers (including TDUs, municipal and cooperatives and aggregators):[8]

1) Clear, accurate, easy to understand language explaining:
   - What energy uses the provider will be managing and how (e.g., cycling periods and frequency, thermostat resets and limits, EV or battery charging time windows), any limits on the length of a load shift or curtailment event per day or week, and seasonal limits on number of curtailment or load shift events,
   - Whether and how far in advance the customer will receive notice of an upcoming load shift or curtailment event,
   - The conditions or circumstances under which the provider will seek to manage the customer's energy usage,
   - Whether and how the customer can opt out of an individual load-shift event,

[7] See, e.g., Jeff St. John, "Seeking a better way to pinpoint the value of demand response in California," Greentechmedia.com, January 25, 2021.

[8] See also the Interstate Renewable Energy Council's "Clean Energy Consumers' Bill of Rights."

- An explanation of any automation technology and communications that will be used to control the customer's energy usage, and training in how to operate that if needed,
- Contact information for support from the DR provider,
- How the customer can cancel participation,
- How customer energy use shifts or savings are calculated.

2) Compensation for the customer's participation, which may include an initial sign-up payment and annual participation payment.
3) Limits and protections on providers' use of customer data and energy use data.
4) Security protections for the provider's communications interface to the customer uses, to prevent the possibility that the customers' home and cyber systems are compromised through the provider's access.
5) Providers should submit example contracts and terms to the PUCT.
6) At the end of each calendar year, providers should report to each customer how many times each of her energy uses was shifted, how many kW and kWh the customer saved from these events, and the dollar value of savings to the customer for the year.
7) At the end of each calendar year, providers should report to the PUCT for each program how many customers participated, load shift and savings impacts (MW and MWh) for each event, the dollar value of actual market savings for each event (itemizing impacts from LMPs and energy payments, ancillary service payments, demand charges, and transmission congestion fees) and the total compensation paid to participating customers relative to the total dollar value of the load shifts.

Conclusion

We appreciate the opportunity to provide these Comments and look forward to working with the Commission and other interested parties on these issues.

Respectfully submitted,

ALISON SILVERSTEIN
Alison Silverstein Consulting
Austin TX 78723
512-964-0787
alisonsilverstein@mac.com

COLIN LEYDEN
Director, Legislative & Regulatory Affairs, Energy
Environmental Defense Fund, Inc.
301 Congress Avenue, Suite 1300
Austin TX 78701
512.691.3463
Cleyden@edf.org